AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for determining a concentration of glucose in a blood sample, the apparatus comprising:

(a) a hollow electrochemical cell, the cell comprising:

(1) at least one non-metal working electrode;

(2) at least one counter electrode or counter/reference electrode, wherein the working electrode and the counter electrode or counter/reference electrode face each other, are located on different planes ~~not co-planer~~, and are separated by a distance of from about 20 microns to about 200 microns;

(3) a spacer interposed between the working electrode and the counter electrode or counter/reference electrode, wherein the spacer comprises a non-conductive polymeric material, and wherein walls of the spacer and the electrodes define the hollow cell; and

(4) a fluid permeable side-wall on at least one side of the hollow cell permitting entry of the sample into the hollow cell, wherein the hollow cell comprises an effective cell volume of less than 1.5 microliters; and

(b) ~~means for applying an electric potential difference between the working electrode and the counter electrode or counter/reference electrode;~~

~~(c) means for measuring a current between the working electrode and the counter electrode or counter/reference electrode; and~~

~~(d) a means for measuring from a cell current a diffusion coefficient of a redox mediator in a cell and independently its concentration.~~

circuitry configured to apply an electric potential difference between the working electrode and the counter electrode or counter/reference electrode, measure a current between the working electrode and the counter electrode or counter/reference electrode, and determine the diffusion coefficient of a redox mediator in the cell, and independently its concentration, from cell current.

2. (Original) The apparatus of claim 1, wherein at least one working electrode comprises a non-metal selected from the group consisting of graphite, carbon, and carbon-filled plastic.

3. (Original) The apparatus of claim 2, wherein at least one counter electrode or counter/reference electrode comprises a metal or a metal coated substrate.

4. (Original) The apparatus of claim 3, wherein the metal is selected from the group consisting of gold, silver, platinum, palladium, iridium, lead, and alloys thereof.

5. (Original) The apparatus of claim 4, wherein the metal comprises silver and wherein a reduced form or an oxidized form of a redox species is contained within the sample, the sample further comprising chloride ions.

6. (Original) The apparatus of claim 5, wherein the fluid permeable side-wall comprises an opening.

7. (New) The apparatus of claim 1, wherein the circuitry comprises a microprocessor.

8. (New) The apparatus of claim 1, wherein the working electrode and the counter electrode or counter/reference electrode are planar electrodes.

9. (New) The apparatus of claim 1, wherein the current between the working electrode and the counter electrode or counter/reference electrode achieves a steady-state current.

10. (New) The apparatus of claim 1, wherein the at least one counter electrode or counter/reference electrode is only a single electrode.

11. (New) The apparatus of claim 1, wherein the electric potential difference between the working electrode and the counter electrode or counter/reference electrode is an approximately fixed potential.